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# मानक

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IS 11269 (1985): Axle Assembly for Conventional  
Animal-drawn Vehicles [FAD 21: Farm Implements and  
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IS : 11269 - 1985

*Indian Standard*

SPECIFICATION FOR  
AXLE ASSEMBLY FOR CONVENTIONAL  
ANIMAL-DRAWN VEHICLES

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**INDIAN STANDARDS INSTITUTION**  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002,

# Indian Standard

## SPECIFICATION FOR AXLE ASSEMBLY FOR CONVENTIONAL ANIMAL-DRAWN VEHICLES

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# *Indian Standard*

## SPECIFICATION FOR AXLE ASSEMBLY FOR CONVENTIONAL ANIMAL-DRAWN VEHICLES

### 0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 31 May 1985, after the draft finalized by the Farm Transport Equipment Sectional Committee had been approved by the Agricultural and Food Products Division Council.

**0.2** The conventional animal-drawn vehicles are the major source of transportation in the rural areas. In order to improve the efficiency in terms of load carrying capacity as well as comfort to the animals, improvements on carts are being made by various organizations.

**0.3** Axle assembly forms one of the major units of the vehicles. Considering that there is increasing manufacture of these axles, a need was felt to prepare this standard. It is hoped that this would reduce variety, achieve rationalization and promote interchangeability.

**0.4** In preparation of this standard, assistance has been obtained from Central Road Research Institute, New Delhi.

**0.5** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS: 2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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### 1. SCOPE

**1.1** This standard specifies material, dimensions and other requirements for axle assembly for conventional animal-drawn vehicles.

### 2. NOMENCLATURE

**2.1** For the purpose of this standard, the nomenclature as given in Fig. 1 shall apply.

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\*Rules for rounding off numerical values (*revised*).

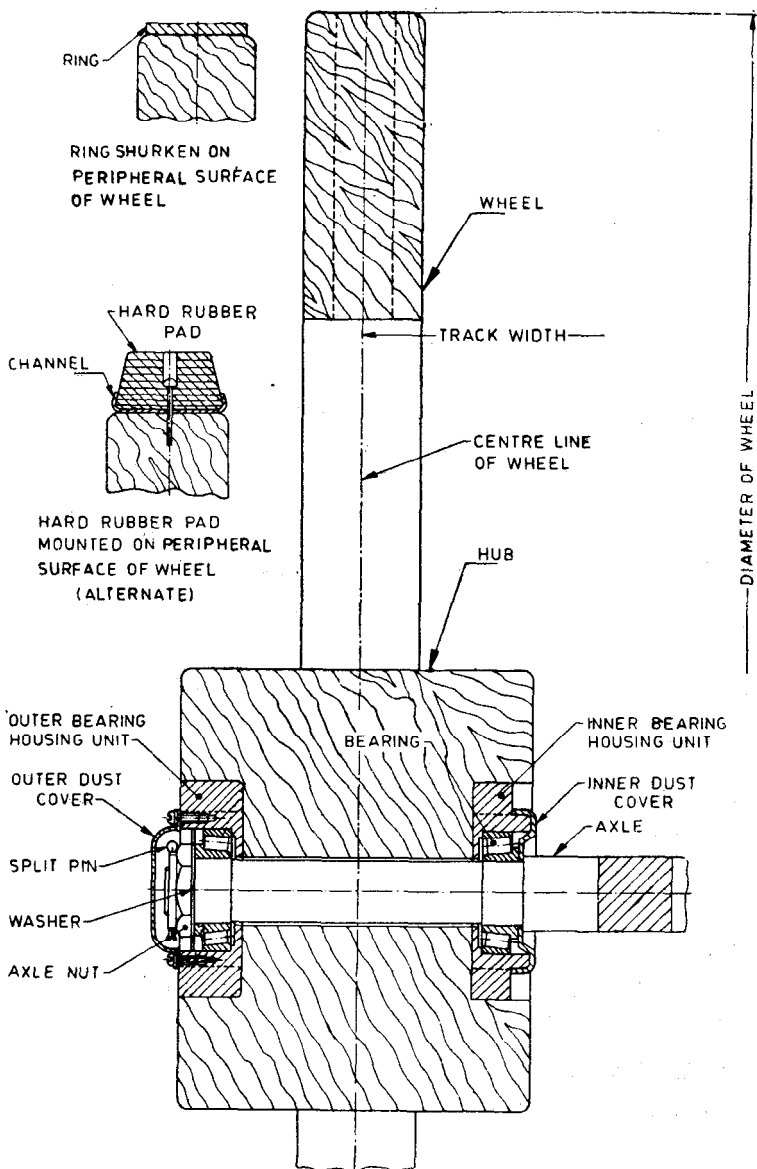


FIG. 1 AXLE ASSEMBLY



### 3. CLASSIFICATION

**3.1** The axle assembly shall be classified in the following three classes:

- a) *Light duty* — Maximum gross load per axle being 1 000 kg,
- b) *Medium duty* — Maximum gross load per axle being 2 000 kg, and
- c) *Heavy duty* — Maximum gross load per axle being 3 000 kg.

NOTE — Per axle means one complete axle assembly for two wheels.

### 4. MATERIAL

**4.1 Axle Shaft** — The axle shaft shall be manufactured from steel conforming to class 3 of IS : 1875-1978\*.

**4.2 Hubs** — Seasoned wood, such as *babul* (*Acacia rabica*), *sal* (*Shorea robusta*), *shisham* (*Dalbergia sissoo*), *siras* (*Albizzia lebbeck*), *sag* (*Tectona grandis*), *khair* (*Acacia catechu*), *ghiria* (*Chloroxylon sevietenia*), *honne* (*Pterocarpus marsupium*), *math* (*Terminalia tomentosa*), *kathal* (*Artocarpus heterophyllus*), and *gamhar* (*Gmelina arborea*) shall be used.

**4.3 Housing Unit** — Housing unit for wooden wheels shall be made of cast iron conforming to grade FG 150 or superior grade of IS : 210-1978† and for steel wheels it shall be made of steel conforming to IS : 226-1975‡.

**4.4 Washer** — As given in 2.1 of IS : 2016-1967§.

**4.5 Split Pin** — As given in 4 of IS : 549-1974||.

**4.6 Dust Cover** — Cast iron conforming to grade FG 150 or superior grade of IS : 210-1978† or mild steel conforming to IS : 226-1975‡ shall be used.

**4.7 Wheel** — Seasoned wood *babul* (*Acacia arabica*), *sal* (*Shorea robusta*), *shisham* (*Dalbergia sissoo*), *siras* (*Albizzia lebbeck*), *sag* (*Tectona grandis*), *khair* (*Acacia catechu*), *ghiria* (*Chloroxylon sevietenia*), *honne* (*Pterocarpus marsupium*), *math* (*Terminalia tomentosa*), *kathal* (*Artocarpus heterophyllus*), *gamhar* (*Gmelina arborea*) or mild steel (see IS : 226-1975‡) shall be used.

\*Specification for carbon steel billets, blooms, slabs and bars for forgings (fourth revision).

†Specification for grey iron castings (third revision).

‡Specification for structural steel (standard quality) (fourth revision).

§Specification for plain washers (first revision).

||Specification for split pin (second revision).

## 5. DIMENSIONS

**5.1 Axle Shaft** — The shaft shall be square or round shape in sizes of 40, 50 and 60 mm.

**5.2 Track Width** — The track width shall be 1 370 or 1 525 mm.

**5.3 Axle Nut** — Slotted nut of sizes M 33, M 42 and M 52 (see IS : 2232-1967\*) shall be used.

**5.4 Split Pin** — The size of the split pin (see IS : 549-1974†) shall be 5, 6.3 and 8 mm.

**5.5 Bearing** — Suitable size bush bearing or tapered roller bearing (see IS : 7461-1980‡) of designation 3 DB (35, 45 or 55 mm bore diameter) shall be used.

**5.6** Various recommended dimensions for light, medium and heavy duty axle assembly are given in Table 1 for guidance.

**TABLE 1 RECOMMENDED DIMENSIONS**

TYPE OF AXLE	SIZE OF SHAFT mm	TRACK WIDTH mm	BEARING BORE DIAMETER mm	SIZE OF NUT	SIZE OF PIN mm
(1)	(2)	(3)	(4)	(5)	(6)
Light duty	40	1 370	35	M33	5
Medium duty	50	1 370	45	M42	6.3
Heavy duty	60	1 370 or 1 525	55	M52	8

## 6. OTHER REQUIREMENTS

**6.1** Provision shall be made for proper alignment of internal and outer bearing housing units.

**6.2** The assembly shall be leak proof and dust proof.

\*Specification for slotted and castle nuts (first revision).

†Specification for split pin (second revision).

‡General plan for boundary dimensions for tapered roller bearings (first revision).

**6.3** The hub shall be packed with multi-purpose grease between the bearings.

**6.4** Preformed rubber tyre shall be tightly fitted on the periphery of wheel coming in contact with the road. Alternatively synthetic rubber padding screwed to the wheel or through the iron rings shall be fitted.

## **7. DESIGNATION**

**7.1** The axle shall be designated by the section of the axle shaft and the track width.

*Example:*

An axle having 50 mm shaft and 1 370 mm track width shall be designated as:

CADV axle 50/1370/IS : 11269

NOTE — CADV is conventional animal drawn vehicles.

## **8. WORKMANSHIP AND FINISH**

**8.1** The castings shall be free from blow holes and rough surfaces.

**8.2** All sharp edges shall be removed.

**8.3** A protective coating shall be provided.

## **9. MARKING**

**9.1** Each axle assembly shall be suitably marked with the following particulars:

- a) Manufacturer's name or recognized trade-mark,
- b) Designation, and
- c) Batch or code number.

**9.1.1** Each axle may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

**INDIAN STANDARDS**  
**ON**  
**FARM TRANSPORT EQUIPMENT**

**IS:**

- 4930-1985 Axle assembly for pneumatic wheeled animal drawn vehicles (*first revision*)
- 8213-1983 Agricultural trailer (*first revision*)
- 8463 (Part 1)-1977 Axle assembly for agricultural tractor trailers:  
Part 1 Load carrying capacity up to 5 tonnes
- 9821-1281 Glossary of terms relating to farm transport equipment
- 10806-1984 Trailer for power tillers
- 10807-1984 Axles with brakes for power tillers
- 11269-1985 Axle assembly for conventional animal-drawn vehicles
- 11270-1985 Technical requirements for ring-type hitches for agricultural trailers